



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,510	09/05/2003	William C. Moyer	SC13053TH	9320

23125 7590 11/13/2006

FREESCALE SEMICONDUCTOR, INC.
LAW DEPARTMENT
7700 WEST PARMER LANE MD:TX32/PL02
AUSTIN, TX 78729

EXAMINER

FLOURNOY, HORACE L

ART UNIT	PAPER NUMBER
----------	--------------

2189

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/657,510

Applicant(s)

MOYER, WILLIAM C.

Examiner

Horace L. Flournoy

Art Unit

2189

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/16/06, 2/9/06, 1/14/05, 3/21/05, 7/5/03</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The instant application having Application No. **10/657,510** has a total of 44 claims pending in the application; there are 3 independent claims and 41 dependent claims, all of which are ready for examination by the examiner.

INFORMATION CONCERNING OATH/DECLARATION

Oath/Declaration

The applicant's oath/declaration has been reviewed by the examiner and is found to conform to the requirements prescribed in **37 C.F.R. 1.63**.

ACKNOWLEDGEMENT OF REFERENCES CITED BY APPLICANT

As required by **M.P.E.P. 609(c)**, the examiner acknowledges the applicant's submission of the Information Disclosure Statements dated **05/16/2006, 02/09/2006, 06/14/2005, 03/21/2005 and 09/05/2003** and the cited references have been considered in the examination of the claims now pending. As required by **M.P.E.P. 609(c)**, a copy of the PTOL-1449 initialed and dated by the examiner is attached to the instant office action.

REJECTIONS BASED ON PRIOR ART

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2189

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-14, 17-18, 21-23, and 30-35, 37-38, and 40-44 are rejected under 35

U.S.C. 102(b) as being anticipated by Yoshida et al. (U.S. Patent no. 5,475,852, hereafter referred to as Yoshida).

Independent Claims

With respect to **independent claims 1 (30 and 41),**

"A data processing system comprising: a memory for storing operands; [disclosed e.g. in column 8, lines 17-25] at least one general purpose register; [disclosed in column 11, lines 37-39, "FIG. 12 is a schematic diagram of the format thereof. Each symbol Rn 272a, 272b shows the number of the general-purpose register."] and processor circuitry for executing one or more instructions, [disclosed in column 9, lines 23-24, "FIG. 3 is a schematic diagram showing a format 208 of an operational instruction between memory and register."] at least one of the one or more instructions for transferring data elements between the memory and the at least one general purpose register [disclosed in column 9, lines 23-24, "FIG. 3 is a schematic diagram showing a format 208 of an operational instruction between memory and register."] wherein the at least one or more instructions specifies size of data elements in the memory separate and independent from specifying size of data elements in the at least one general purpose register." [disclosed, e.g. in column 9, lines 28-36, "In the L-format, symbol Sh 210 represents

the designating field of the source operand, symbol Rn 212 represents the designating field of the register of the destination operand and RR 214 represents designating of the operand size of Sh 210, respectively. The size of the destination operand located in the register is fixed to 32 bits. Where the size of the register side differs from that of the memory side and the size of the source side is smaller, sign extension is performed.”]

Dependent Claims

With respect to **claims 2 (31 and 42)**,

“The data processing system of claim 1 wherein the one or more instructions comprises independent fields for separately storing a first data size specifier for the memory and a second data size specifier for the at least one general purpose register.” [disclosed, e.g. in column 9, lines 28-36, “In the L-format, symbol Sh 210 represents the designating field of the source operand, symbol Rn 212 represents the designating field of the register of the destination operand and RR 214 represents designating of the operand size of Sh 210, respectively. The size of the destination operand located in the register is fixed to 32 bits. Where the size of the register side differs from that of the memory side and the size of the source side is smaller, sign extension is performed.”]

With respect to **claims 3 (32 and 42)**,

“The data processing system of claim 1 wherein the one or more instructions specifies a storage location for defining a first data size specifier for the memory

Art Unit: 2189

and a second data size specifier for the at least one general purpose register."

[disclosed, e.g. in column 9, lines 28-36, "In the L-format, symbol Sh 210 represents the designating field of the source operand, symbol Rn 212 represents the designating field of the register of the destination operand and RR 214 represents designating of the operand size of Sh 210, respectively." The designating fields of the source and destination are interpreted as storage locations for the first and second data specifiers as claimed.]

With respect to **claim 4**,

"The data processing system of claim 3 wherein the storage location is any one of a location in the memory and a processor register location external to the memory." **[disclosed, e.g. in column 2, lines 2-4, "the operand access unit 104 outputs the operand address to the memory external to the microprocessor..."]**

With respect to **claim 5**,

"The data processing system of claim 3 wherein the storage location is a control register of the data processing system." **["FIG. 4 is a schematic diagram showing a format 216 of an operational instruction between register and register (R-format)." Yoshida shows a storage location is a register]**

Art Unit: 2189

With respect to **claim 6**,

"The data processing system of claim 3 wherein the storage location is a register within the data processing system that arithmetic, logical and shift operations performed by the data processing system utilize." **[disclosed, e.g. in column 17, lines 43-47]**

With respect to **claim 7**,

"The data processing system of claim 1 wherein the memory further comprises a plurality of multiple data elements to be transferred between the memory and the at least one general purpose register." **[Yoshida teaches this claim, e.g. in FIG. 50, step s51]**

With respect to **claims 8 (and 33)**,

"The data processing system of claim 7 wherein the multiple data elements are contiguous in the memory." **[see column 14, lines 27-30]**

With respect to **claims 9 (and 34)**,

"The data processing system of claim 7 wherein the multiple data elements are non-contiguous in the memory." **[FIG. 27 shows data elements "IRL" and "Micro Rom Address" as non-contiguous in memory]**

Art Unit: 2189

With respect to **claim 10**,

"The data processing system of claim 1 wherein each of the at least one general purpose register holds multiple data elements." **[Yoshida teaches this claim, e.g. in FIG. 50, step s51. Also see column 16, lines 65-67]**

With respect to **claim 11**,

"The data processing system of claim 1 wherein each of the at least one general purpose register comprises a scalar register that has a one-dimensional memory map." **[FIG. 2 shows a scalar register that has a one-dimensional, single row bit field.]**

With respect to **claim 12**,

"The data processor of claim 1 wherein when the at least one or more instructions specifies size of a source data element in the memory to be greater than size of a destination data element in the at least one general purpose register, the processor circuitry truncates a portion of the source data element in the memory." **[disclosed in column 9, lines 42-45, "Where the size of the register side differs from that of the memory side and the size of the source side is larger, truncating of the overflow portion and overflow check are performed."]**

With respect to **claim 13**,

"The data processor of claim 12 wherein the portion of the source data element in the memory that is truncated is a high order portion of the source data element"

Art Unit: 2189

in the memory.” [disclosed in column 9, lines 42-45, “Where the size of the register side differs from that of the memory side and the size of the source side is larger, truncating of the overflow portion and overflow check are performed.” The high order portion of the source data element is interpreted as either the overflow portion as disclosed in Yoshida.]

With respect to **claim 14**,

“The data processor of claim 12 wherein the portion of the source data element in the memory that is truncated is a low order portion of the source data element in the memory.” [disclosed in column 9, lines 42-45, “Where the size of the register side differs from that of the memory side and the size of the source side is larger, truncating of the overflow portion and overflow check are performed.” The low order portion of the source data element is interpreted as either the overflow check as disclosed in Yoshida.]

With respect to **claim 17**,

“The data processor of claim 16 wherein the processor circuitry places predetermined data values in the portion of the destination data element of the at least one general purpose register by using zero extension.” [Yoshida anticipates this limitation e.g. in column 9, lines 59-67]

With respect to **claim 18**,

“The data processor of claim 16 wherein the processor circuitry places predetermined data values in the portion of the destination data element of the at

Art Unit: 2189

least one general purpose register by using sign extension." **[Yoshida discloses, e.g. in column 9, lines 32-36]**

With respect to **claim 21**,

"The data processor of claim 1 wherein when the at least one or more instructions specifies size of a destination data element in the memory to be less than a size of a source data element in the at least one general purpose register, the processor circuitry truncates a portion of the source data element in the at least one general purpose register." **[disclosed in column 9, lines 42-45, "Where the size of the register side differs from that of the memory side and the size of the source side is larger, truncating of the overflow portion and overflow check are performed." Yoshida teaches that the general purpose register is a source.]**

With respect to **claim 22**,

"The data processor of claim 21 wherein the processor circuitry truncates a high order portion of the source data element in the at least one general purpose register." **[disclosed in column 9, lines 42-45, "Where the size of the register side differs from that of the memory side and the size of the source side is larger, truncating of the overflow portion and overflow check are performed." The high order portion of the source data element is interpreted as either the overflow portion as disclosed in Yoshida.]**

Art Unit: 2189

With respect to **claim 23**,

"The data processor of claim 21 wherein the processor circuitry truncates a low order portion of the source data element in the at least one general purpose register." [disclosed in column 9, lines 42-45, "Where the size of the register side differs from that of the memory side and the size of the source side is larger, truncating of the overflow portion and overflow check are performed." The low order portion of the source data element is interpreted as either the overflow check as disclosed in Yoshida.]

With respect to **claim 44**,

"The data processing system of claim 41 further comprising control circuitry that adjusts data element size when necessary to communicate data when size of data elements stored in the memory differ from size of data elements stored in the at least one storage location in the data processing system external to the memory." [Yoshida teaches the above claim, e.g. in column 1, lines 62-67]

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere CO.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 16, 19, 20, and 25-29 are rejected under 35 U.S.C. 103(a) as being obvious over Yoshida et al. (U.S. Patent no. 5,475,852 in view of the Chung et al. (U.S. Patent No. 6,950,922, hereafter referred to as Chung).

With respect to **claims 16, 19, 20, and 25, 28-29**, Yoshida teaches "The data processor of claim 1" as stated supra in the rejection to claim 1.

Yoshida, however, does not disclose *expressly* the limitations of **claims 16, 19, 20, and 25, 28-29, which are taught by Chung as shown below.**

Yoshida and Chung are *analogous art* because they are from the same field of endeavor, that being source to destination register memory copying.

At the time of the invention it would have been *obvious* to a person of ordinary skill in the art to combine the functions of claims 16, 19, and 20 with claim 1.

The *motivation* for doing so would have been obvious based on the teaching of Chung in column 1, lines 38-52.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention having the teachings of Yoshida and Chung before him/her to combine Chung and Yoshida for the benefit of having the claim limitations found in claims 16, 19, and 20 (which also encompass the limitations of claims 25-29) which depend upon claim 1.

With respect to **claim 16**,

"The data processor of claim 1 wherein when the at least one or more instructions specifies size of a source data element in the memory to have a smaller size than a destination data element in the at least one general purpose register, the processor circuitry places predetermined data values in a portion of the destination data element of the at least one general purpose register that is not filled by the source data element from the memory." **[disclosed in Chung in column 9, lines 47-53]**

With respect to **claim 19**,

"The data processor of claim 16 wherein the processor circuitry places predetermined data values in the portion of the destination data element of the at least one general purpose register by filling a predetermined bit value in a low order data portion of the destination data element of the at least one general purpose register." **[See Chung FIG. 2, element 220 and all associated text within the specification]**

Art Unit: 2189

With respect to **claim 20**,

"The data processor of claim 19 wherein the predetermined bit value is a zero value." **[Disclosed in Chung column 9, lines 1-25]**

With respect to **claim 25**,

"The data processor of claim 1 wherein when the at least one or more instructions specifies size of a destination data element in the memory to be greater than a size of a source data element in the at least one general purpose register, the processor circuitry places predetermined data values in a portion of the destination data element in the memory that is not filled by the source data element in the at least one general purpose register." **[disclosed in Chung in column 9, lines 47-53]**

With respect to **claim 26**,

"The data processor of claim 25 wherein the processor circuitry places the predetermined data values in the portion of the destination data element in the memory that is not filled by using zero extension." **[Yoshida anticipates this limitation e.g. in column 9, lines 59-67]**

With respect to **claim 27**,

"The data processor of claim 25 wherein the processor circuitry places the predetermined data values in the portion of the destination data element in the memory that is not filled by using sign extension." **[Yoshida discloses, e.g. in column 9, lines 32-36]**

With respect to **claim 28**,

"The data processor of claim 25 wherein the processor circuitry places the predetermined data values in the portion of the destination data element in the memory that is not filled by placing a predetermined bit value in a low order data portion of the destination data element." [See Chung FIG. 2, element 220 and all associated text within the specification]

With respect to **claim 29**,

"The data processor of claim 28 wherein the predetermined bit value is zero."
[Disclosed in Chung column 9, lines 1-25]

Claims 15, 24, 36, and 39 are rejected under 35 U.S.C. 103(a) as being obvious over Yoshida et al. (U.S. Patent no. 5,475,852 in view of Paver et al. (U.S. Patent No. 6,950,922, hereafter referred to as Paver).

With respect to **claims 15, 24, 36, and 39**, Yoshida teaches "The data processor of claim 1" as stated supra in the rejection to claim 1.

Yoshida, however, does not disclose *expressly* the limitations of "...the processor circuitry rounds a high order portion of the source data element in the memory based on a value of a low order portion of the source data element in the memory", as stated in claims 15 and 24.

Paver teaches the above limitations as shown below.

Art Unit: 2189

Yoshida and Paver are *analogous art* because they are from the same field of endeavor, that being source to destination register memory copying.

At the time of the invention it would have been *obvious* to a person of ordinary skill in the art to combine the functions of *rounding of a portion of a source data element when determining the source to destination data specification size with the limitations of claim 1*.

The *motivation* for doing so would have been obvious based on the teaching of Paver in column 1, lines 15-34.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention having the teachings of Yoshida and Paver before him/her to combine Paver and Yoshida for the benefit of having a limitation *rounding of a portion of a source data element when determining the source to destination data specification size with the limitations of claim 1*.

With respect to **claims 15 (and 36)**,

"The data processor of claim 1 wherein when the at least one or more instructions specifies size of a source data element in the memory to be greater than the size of a destination data element in the at least one general purpose register, the processor circuitry rounds a high order portion of the source data element in the memory based on a value of a low order portion of the source data element in the memory." [disclosed by Paver in column 8, lines 24-36]

With respect to **claims 24 (and 39)**,

Art Unit: 2189

"The data processor of claim 1 wherein when the at least one or more instructions specifies size of a destination data element in the memory to be less than a size of a source data element in the at least one general purpose register, the processor circuitry rounds a high order portion of the source data element in the at least one general purpose register based on a value of a low order portion of the source data element." **[disclosed by Paver in column 8, lines 24-36]**

CONCLUSION

Direction of Future Correspondences

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Horace L. Flournoy whose telephone number is (571) 272-2705. The examiner can normally be reached on Monday through Friday 8:00 AM to 5:30 PM (ET).

Important Note

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Reginald G. Bragdon can be reached on (571) 272-4204. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 746-7239.

Information regarding the status of an Application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published

Art Unit: 2189

applications may be obtained from either Private PAIR or PUBLIC PAIR. Status information for unpublished applications is available through Private Pair only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2100.

Horace L. Flourney

Reginald G. Bragdon

Patent Examiner
Art unit: 2189

Supervisory Patent Examiner
Technology Center 2100

Mano Padmanabhan
11/6/06

MANO PADMANABHAN
SUPERVISORY PATENT EXAMINER